Other Courses on Hydraulics and Water Resources Available From ASCE

continued from panel 4

storm water detention basins, analyzing large reservoirs, performing dam-breach analyses, and computing urban runoff using kinematic wave methods. It provides several methods for computing precipitation distributions, infiltration losses, unit hydrographs, channel routing, and other basic hydrologic computations. The course includes seminar slide handouts, Hands-On HEC-1 book, HMR52 User's Manual, and software installation. 4 hours. *0.4 CEUs*

Hands on HEC-RAS

The purpose of this seminar-on-CD is to walk you through the process of creating and executing a detailed model in HEC-RAS. Several of the seminar models are "un-finished" and the guide recreates the steps to give you a good hands-on introduction to the program. Although we will be dealing with models of very small stream systems, the steps used are exactly the same as when dealing with very large complex systems. 4 hours. *0.4 CEUs*

Introduction to HEC-HMS

This seminar-on-CD is an overview and demonstration of the Hydraulic Engineering Center's Hydrologic Modeling System (HEC-HMS) software. It is intended primarily for those already familiar with hydrologic watershed models such as HEC-1, TR-20, or SWMM. The focus is on new HEC-HMS capabilities, such as the powerful graphical interface and the ability to use new data sets such as NEXRAD weather radar data and Digital Elevation Models (DEMs). This course contains the same class materials provided at the live seminar, including HEC-HMS and HEC-GeoHMS User's Manuals and software installation. 4 hours. *0.4 CEUs*

Introduction to HEC-RAS

This seminar-on-CD provides an over-view and demonstration of the Hydraulic Engineering Center's River Analysis System (HEC-RAS) software with a focus on HEC-RAS capabilities. It discusses the history and purpose of HEC-RAS. Current capabilities are covered in detail and future enhancements are highlighted. Comparisons are made between HEC-2 and HEC-RAS. Getting started with a HEC-RAS model will be presented along with many example modeling situations that are included with the program. The course contains the same class materials provided at the live seminar, including the HEC-RAS and HEC-GeoRAS User's Manuals and software installation and a HEC-RAS Quick Reference Guide. 4 hours. *0.4 CEUs*

Storm Water Management

This online course provides an understanding of storm water management. You will learn program organizational issues, urban storm water management, NPDES Phase II, financing issues (including the use of storm water utilities), and how to construct comprehensive storm water management program. 7.5 hours. *7.5 PDHs*

Wetlands and 404 Permitting

This online course provides an overview of wetlands, including a definition of what wetlands are, the regulation of wetlands, the 404 permitting process, wetlands mitigation and future directions. 6 hours. *6.0 PDHs*

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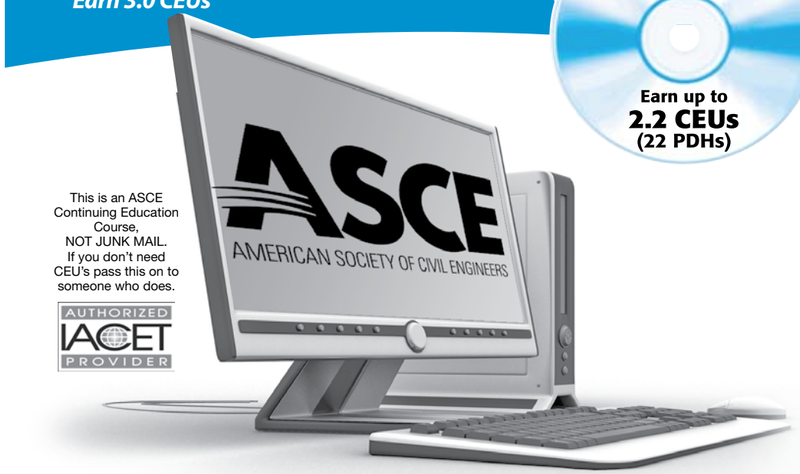

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CD 1 – Hydrology (0.4 CEUs)

Hydrology I
- Hydrologic Cycle
- H&H Terminology - General Concepts
- Hydrology I - Runoff Methods
- Introduction to HEC-HMS and HEC-1

Instructor: ***Jennifer Walker, P.E.***

Hydrology II
- Rainfall
- Losses
- Stream Routing

Instructor: ***Andy Yung, P.E., CFM***

Hydrology III
- Malcolm Small Watershed Method
- Rainfall/Runoff Transformations
  - –Unit Hydrograph Methods
  - –Distributed Runoff Methods
- Clark Unit Hydrograph Method

Instructor: ***Jennifer Walker, P.E.***

CD 2 – Hydraulics (0.4 CEUs)

Hydraulics I
- Open Channel Flow
- Flow Regimes and Flow States
- Water Surface Profile Calculations
- Open Channel Design
- Ineffective Flow Areas (HEC-RAS preview)

Instructor: ***Matt Zeve, E.I.T., CFM***

Hydraulics II
- Floodplains
- Floodways
- National Flood Insurance Program
  - – Flood Insurance Rate Maps
  - – Map Change Requests
- Floodplain Manager Certification
- 4 Case Studies

Instructor: ***Chris Johnson, P.E., CFM***

Hydraulics III
- Bridge Hydraulics
- Bridge Scour
- Culvert Hydraulics
- Other Hydraulic Structures
  - – Spillways
  - – Weirs
  - – Drop Structures
  - – Energy Dissipaters

Instructor: ***Matt Zeve, E.I.T., CFM***

CD 3 – Model Review (0.3 CEUs)

HEC-HMS Model Review
- Input review
  - – Correctly inserting the data into the model
  - – Basin model
  - – Meteorological model
  - – Control specifications
  - – Existing vs. proposed conditions
- **Output review***
  - – Making sense of the results
  - – Hydrographs
  - – Development without mitigation
  - – Channel modifications
  - – Detention mitigation
  - – Impact analysis

Instructor: ***Andy Yung, P.E., CFM***

*Houston Flood Damage Reduction Feasibility Study

Dodson & Associates and Dr. Phil Bedient (review consultant), prepared a feasibility-level study to determine whether a single solution could be found to address the flooding problems in Harris County, Texas. The study assumed the flooding in Harris County generally begins at about a 10% probability (10-year) flood level. The objective of the study was to identify alternatives which would reduce 1% probability (100-year) flood levels down to 10% levels.

Instructor: ***Andy Yung, P.E., CFM***

HEC-RAS Model Review
- Preliminary Actions
- Built in Data Checking by HEC-RAS
- Check Flowrates
- Review Output
- View Errors, Warnings and Notes
- Check Structure Crossings
- Check Boundary Conditions
- Check Coefficients
- Check Cross Sections

Instructor: ***Matt Zeve, E.I.T., CFM***

CD 4 – Project Applications (0.4 CEUs)

Impact Analysis
- Introduction to Impact Analyses
- How to Perform an Impact Analysis
- Impact Mitigation
- Detention Basins
- Flood Plain Storage
- Conveyance

Instructor: ***Duane Barrett, P.E.***

Capstone Project
- Refine H&H critical thinking skills
- *"day in the life"* of a consulting engineer
  - – typical drainage project
- Data Collection & Review
- Drainage Plan
- Hydrology
  - – existing conditions
  - – proposed conditions
  - – HEC-HMS
- Detention Analysis
  - – detention design
  - – HEC-HMS
  - – Downstream impacts
- Hydraulics
  - – design channel extension
  - – downstream impacts
- Client Coordination
  - – developer
  - – review agencies
  - – land planner, surveyor, etc.
- Report

Instructors: ***Jennifer Walker, P.E., & Matt Zeve, E.I.T., CFM***

CD 5 – GIS for Engineers featuring HEC-GeoHMS and HEC-GeoRAS

GIS for Engineers (0.3 CEUs)
- Purpose of Session
  - – To introduce HEC-GeoHMS & HEC-GeoRAS
  - – To review a case study application
  - – To summarize current practical capabilities
- **Session Outline**
  - – Overview
  - – Advantages of GIS Applications
  - – Limitations of GIS Applications
  - – HEC-GeoHMS Demonstration
  - – HEC-GeoRAS Demonstration
  - – Recent Developments

Instructors: ***Chris Johnson, P.E., CFM, Michael Henze & Mark Starks***

CD 6 – NPDES Stormwater Quality Issues (0.4 CEUs)

NPDES - Stormwater Quality Issues
- Overview of the NPDES Program
  - – Clean Water Act, Water Quality Act, Total Measurable Daily Loads (TMDLs)
  - – Common Definitions
- Enforcement of the NPDES Program
  - – State/EPA Authority
  - – Local Enforcement
- Local Storm Water Management Planning (Texas)
  - – Joint Task Force (JTF) SWMP Programs
  - – Storm Water Quality Management Plans
- Program Areas and Permits (Texas)
  - – Municipal Permits and Storm Water Plans
- Program Areas and Permits (Texas)
  - – Construction Site Permits and SWPPPs
  - – Industrial Permits and SWPPPs
- Stormwater Pollution Prevention on Construction Sites (video provided by Wal-Mart Stores, Inc.)

Instructor: ***Craig Maske, P.E.***

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This six-CD series contains the same class materials provided at the live seminar. A CEU quiz is also available for those wanting to earn Continuing Education Units (CEUs). Class materials are provided in Adobe® Acrobat® PDF file format and can be viewed online or printed out. A printed copy of slide handouts is useful to have for taking notes while viewing a session. A sound card, speakers, and/or headphones are required to listen to the seminar slide show audio track.

Environmental and Water Resources Online Course Set

This online course package includes three on-demand online courses on Environmental and Water Resources topics at a discounted rate of 25% off! The set includes:

GIS Applications in Water, Wastewater, and Stormwater Systems

This online version of ASCE's seminar on GIS Applications in Water, Wastewater, and Stormwater Systems will enable you to use GIS technology in solving water-related problems. You will be able to decide whether a given situation or problem has a GIS application and you will learn what kind of effort and resources are required in GIS applications. The four GIS applications that are of particular importance to water, wastewater, and stormwater system managers will be discussed: mapping; monitoring; modeling; and maintenance. 11 hours.

Introduction to Detention Pond Design

Detention ponds are designed to provide numerous functions, including reducing peak discharges and improving water quality. Improperly designed, they can be a hazard to the public. This online course will provide you with the information needed to design an appropriately sized detention pond that will provide numerous benefits and limit liabilities. Topics covered include: rainfall data sources, rainfall runoff modeling, inlet grate capacity analysis, outlet capacity design and analysis, detention pond sizing and underground ponds, routing a hydrograph through a detention pond, impacts of ponds on water quality and hazards of detention ponds and when not to use them. 10 hours.

Treatment Plant Hydraulics for Civil Engineers

This online course presents the basics of pressure pipe and open channel flow hydraulics as applied in the design and operation of water and wastewater treatment plants. Topics include, basics of pipe and open channel flow, hydraulic head losses, pipe and channel layout and design, flow-meter selection, flow control and flow distribution, design of hydraulic elements, and design of water and wastewater treatment plant unit processes. This course will provide engineers with the hydraulic engineering design tools needed to successfully layout and design the flow elements of both water and wastewater treatment plants. Numerous design examples are incorporated in the course and both theoretical examples and practical design solutions from existing treatment plants will be covered. 9 hours.

3.0 CEUs for the entire set

For additional information on the CDs or to order go to:
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Other ASCE Courses on Hydraulics and Water Resources Topics

Advanced Detention Routing

This seminar-on-CD will increase your expertise in detention routing and address the essential concepts of detention routing using "real-world" examples and case studies. This course will help you minimize risk and improve the operation and effectiveness of your clients' detention facilities, including ensuring that the facility is designed to operate effectively and avoid impacts to adjacent or downstream properties. Additionally, you will learn to improve detention routing project performance through effective project planning and strategy development. 6 hours. *0.6 CEUs*

GIS in Water Resources

GIS has been used for many years to develop solutions to water resource problems. This ASCE seminar-on-CD is geared toward those wanting to learn about the basics of GIS and how it can be used as a vital tool in the field of water resources. Assessing water resources, determining water availability, preventing flooding, understanding the natural environment, and managing water resources on a local or regional scale are just some of the tools discussed. Course materials include slide handouts that can be printed and used for taking notes. 6 hours. *0.6 CEUs*

Dam Safety and Rehabilitation

This seminar-on-CD focuses on the current status of existing dams in the U.S., fundamentals of performing a dam safety inspection and analysis, and rehabilitation practices. 7 hours. *0.7 CEUs*

Hands-On HEC-1 Seminar

This seminar-on-CD is a comprehensive introduction to watershed modeling using HEC-1 and also includes introductions to HEC-HMS, HERC-GeoHMS and LIDAR Data. HEC-1 computes hydrographs for both simple and complex stream systems. It can be used for designing

continued on panel 5